

INSTRUCTIONS FOR USE OF DATA COLLECTION FORMS
LARGE SCALE TECHNOLOGY DEMONSTRATIONS
12 MARCH 1998

1. References:

- a. Hazardous, Toxic and Radioactive Waste Remedial Action Work Breakdown Structure and Data Dictionary (HTRW RA WBS), US Army Corps of Engineers, February 1996
- b. Productivity Study For Hazardous, Toxic and Radioactive Waste Remediation (HTRW) Projects, US Army Corps of Engineers, October 1994.

These references contain cost engineering tools that allow, among other things, for cost analyses prepared by Corps of Engineers personnel to be performed on a uniform list of major cost elements and for unit costs to be revised based on differing PPE requirements and ambient temperatures.

2. The data collection forms are intended to (1) facilitate the collection of cost and performance data during the large scale demonstration of baseline and innovative technologies and (2) facilitate the preparation of cost analyses of the baseline and innovative technologies. Where baseline and innovative technologies are demonstrated "head-to-head," separate data packages must be prepared for each technology.
3. The following paragraphs provide directions for use of the individual sheets in the forms package. More than one of any sheet may be required for each demonstration, particularly the Daily Field Log.
 - a. General Information. Self-explanatory. This sheet may be completed prior to the technology demonstration.
 - b. Technology Application. This sheet is used to list the application for which the technology is to be demonstrated and some of the conditions under which the demonstration will be conducted. This sheet may be completed prior to the technology demonstration.
 - c. Listing of Capital Equipment. This sheet is used to record the information needed to determine an hourly rate for the capital equipment used during a technology demonstration. Small, commonly used hand tools and power tools should not be listed here. A copy of the technology vendor's spec sheets/equipment brochures should be attached to the data package.
 - d. Activity List. The key activities that will be performed during a technology demonstration should be listed here. The list would be developed from a detailed test plan or work plan for the technology demonstration and should specifically include those activities that support appropriate cost elements from Level Two of the HTRW RA WBS. The level of effort should be identified for each activity. Light work is characterized as walking on a level surface, operating machinery, or other tasks that could be performed for an entire shift without rest breaks. Heavy work is characterized as continually walking uphill or frequent bending and lifting.
 - e. Activity Detail Worksheet. This sheet provides a place to provide some general information about each individual activity. Separate sheets should be completed for

each activity from the Activity List. These sheets can be completed prior to the technology demonstration. The activity name and number should be carried over from the Activity List for tracking purposes.

- f. Activity Resource Requirements I. This sheet provides a place to record detailed cost information on the labor and equipment required for an individual activity. This sheet can be completed prior to the technology demonstration. However, it may be modified if differences are observed between the test plan and the actual demonstration. Resource requirements sheets need to be completed for each Activity Detail Sheet. The activity name and number need to be carried over from the Activity List for tracking purposes.
 - g. Activity Resource Requirements II. This sheet is a continuation of Activity Resource Requirements I. It provides a place to record detailed cost information on the materials, PPE, and other cost allowances required to support an individual activity. This sheet can be completed prior to the technology demonstration. However, it may be modified if differences are observed between the test plan and the actual demonstration. Resource requirements sheets need to be completed for each Activity Detail Sheet. The activity name and number need to be carried over from the Activity List for tracking purposes.
 - h. Daily Field Log. This sheet is intended to be taken into the field and used to record daily activities data as technology demonstrations are conducted. The sheet provides for recording ambient temperatures at the work site in the morning before activities start and immediately after the lunch break. The temperature ranges provided correspond to those in the Productivity Study for HTRW RA Projects. Start and stop times are recorded under "Time." Activities performed during the time blocks are described under "Comments." Routine and frequent activities can be described using the defined alphabetical characters shown in the right-hand column. Space is provided to allow the data recorder to define routine activities that are specific to the technology being demonstrated.
 - i. Task Field Log. This sheet is an alternative to the Daily Field Log. It can be used to record the duration of non-routine activities and/or tasks that are accomplished in brief periods of time without interruptions. It could also be used on a long-term technology deployment where tasks and activities need to be summarized weekly, monthly, etc.
 - j. Miscellaneous Information Log. This sheet is provided to record cost and performance data which does not fit on any of the other sheets. It can also be used to make drawings, sketches, etc.
4. Upon completion of a technology demonstration, the data package is assembled in the following order:
- a. General Information
 - b. Technology Application
 - c. Listing of Capital Equipment
 - d. Activity List
 - e. Grouped sheets for each activity (detail worksheets, resource sheets, daily field logs, etc.)
 - f. Miscellaneous Information Logs
 - g. Technology vendor specifications/product brochures, etc.
5. After final assembly, the individual sheets in the data package are numbered.